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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,759	03/31/2004	Jeffrey Wayne Eberhard	132360-1/YOD GERD:0057	5265
7590	09/06/2005		EXAMINER	
Patrick S. Yoder Fletcher Yoder, P.C. P.O. Box 692289 Houston, TX 77269-2289			THOMAS, COURTNEY D	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/813,759

Applicant(s)

EBERHARD ET AL.

Examiner

Courtney Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07/07/04</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, representative claim 10, line 2 recites: "... a code adapted to acquire a plurality of projection images..." Examiner notes that the code, in of itself, does not acquire information, but rather, enables an apparatus, comprising information gathering elements, to carry out functions that enable the acquisition of projection images. Examiner concludes that illustrative claim 10, as written is ambiguous, since it is unclear whether the code should be regarded only as a means for gathering information and performing reconstructions (i.e. claim 10) or the code represents a means for operating an apparatus to carry out functions, gather received information and to perform reconstructions (i.e. dependent claim 14). Dependent claims 11-16 are herein similarly rejected by virtue of their dependency on independent claim 10.

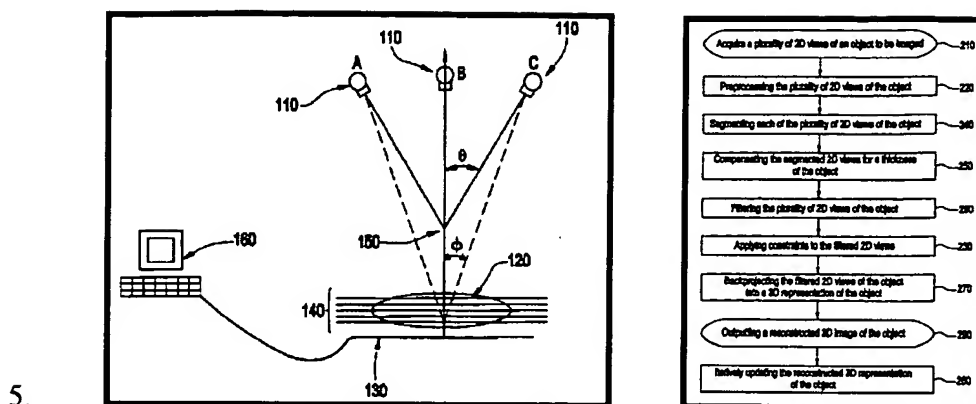
### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 4-9 and 17-25 are rejected under 35 U.S.C. 102(a) as being anticipated by Claus et al. (U.S. Patent 6,707,878).



**Figs. 1 & 2 - Imaging Apparatus and Image Reconstruction Method-U.S. Patent 6,707,878 to Claus et al.**

6. As per claims 1 and 4-9, Claus et al. disclose a method for generating a three-dimensional dataset comprising the steps of acquiring a plurality of projection images from different locations on an arbitrary imaging trajectory (Figs. 1 & 2 shown above; see steps 210, 270, 290); wherein acquiring the plurality of projection images comprises emitting X-rays from one or more X-ray sources (110) at a plurality of locations on the arbitrary imaging trajectory and generating at least one projection image corresponding to each location from which X-rays are emitted (see also column 4, lines 43-67; column 5, lines 1-27; column 8, lines 58-61. For discussions relating to system configurations, see column 5, lines 19-27).

7. As per claims 17-25, Claus et al. disclose an imaging system comprising means for acquiring a plurality of projection images from different locations on an arbitrary imaging trajectory and means for reconstructing the plurality of projection images to form a three-dimensional dataset (see Fig. 1, above). For clarity, Examiner notes that the disclosed imaging system comprises an X-ray source (110), detector (130) and computer (160) configured to receive signals generated from the detector in response to detected radiation passing through an object of interest (column 4, lines 43-67; column 5, lines 1-27). Though not explicitly shown, artisans in the radiation art would recognize that the disclosed imaging system further comprised

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a positioner and controller configured to move and operate at least the X-ray source, since this a common mode of acquiring images for three-dimensional reconstruction. Fig. 1 shown above is illustrative of conventional imaging systems and it would be appreciated by those having ordinary skill in the art that such systems would comprise elements to facilitate the movement and operation of at least the X-ray source (for discussions relating to workstations and/or picture archiving, see also column 5, lines 19-27; column 10, lines 9-21).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 3 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Claus et al. (U.S. Patent 6,707,878).

10. **As per claims 2 and 3**, Claus et al. do not explicitly disclose a method comprising the step of visualizing a selected volume of the three dimensional dataset or processing at least one of the plurality of projection images, three dimensional dataset and a volume subset of the three dimensional dataset using a CAD (computer aided diagnosis (or detection)) algorithm.

11. Claus et al. teach the processing of projection images to generate three-dimensional datasets for improved analysis of radiographs for diagnostic purposes. Claus et al. suggest that the acquisition of projection slices enables the generation of volumetric information, as selected by an operator to assist in visualization. Furthermore, Claus et al suggest the use of CAD algorithms for additional analysis (see column 2, lines 4-22; column 9, lines 60-65).

12. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Claus et al. such that it incorporated the step of visualizing a selected volume of the three dimensional dataset and/or processing at least one of the plurality of projection images, three dimensional dataset and a volume subset of the three dimensional dataset using a CAD (computer aided diagnosis (or detection)) algorithm. One would have been motivated to make such a modification for the purpose of obtaining improved analysis of radiographs to render more accurate diagnosis as suggested by Claus et al. (see column 2, lines 4-22; column 9, lines 60-65).

13. **As per claims 10-16**, Claus et al. disclose a method as recited in claim 1, but do not explicitly disclose a tangible, machine readable media comprising code to cause an apparatus to acquire a plurality of projection images and to reconstruct the plurality of projection images to form a three-dimensional dataset.

14. It would have been obvious to one having ordinary skill in the art at the time the invention was made modify the method of Claus et al. such that it incorporated the step of providing a tangible, machine readable media comprising code to cause an apparatus to acquire a plurality of projection images and to reconstruct the plurality of projection images to form a three-dimensional dataset. One would have been motivated to make such a modification for the purpose of causing an apparatus to automatically obtain data and to perform image processing techniques without the aid of a human operator for fast, reliable diagnosis or obtained radiographs as suggested by Claus et al. (see column 2, lines 4-22; column 9, lines 60-65).

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*Conclusion*

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: **U.S. Patent Application Publication 2003/0194121 to Eberhard et al.** discloses a Computer Aided Detection (CAD) for 3D Digital Mammography.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (571) 272-2496. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Courtney Thomas*

Courtney Thomas  
Examiner  
Art Unit 2882